

자동차 검사정책



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A Study on the Necessity of Introducing Motor Vehicle Inspection Equipment When Inspecting the Protection Function of Electric Platforms

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Key Words : Bus door(버스도어), Children's vans(어린이운송용승합차), Safety(안전), Stepping door(승강구), Automotive tuning (자동차튜닝), Vehicle inspection(자동차검사)

ABSTRACT

Although cases of human injuries continue to occur as passengers' clothes or wrists get caught in the stepping door of public buses and children's vans manufactured and specially modified to safely transport children, methods to verify normal operation of the safety devices of electric stepping door in public transportation (appropriate protection function when closing) are insufficient. Therefore, there is no legal basis for inspection equipment that can measure the load (150 N or less) generated when the stepping door closes and therefore can directly determine whether the preventive standards for jamming accidents are appropriate. Therefore, we developed a device that can measure the operation status of electric stepping door and selected 14 of the pressure vessel inspection stations of the Korea Transportation Safety Authority nationwide where we had a pilot operation on buses in the inspection stations to come up with improvement measures through a survey of the current operating vehicles. In addition, it is necessary to introduce vehicle inspection method to ensure safety of motor doors installed through modification, for which an inspection method and standards are insufficient.

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초소형 전기자동차 고장 분석을 통한 차량안전성 향상 방안에 대한 연구

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A Study on the Improvement of Vehicle Safety through Fault Analysis of Micro-Electric Vehicle

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Key Words : Micro-Electric Vehicle(초소형 전기자동차), Electric Vehicle(전기자동차), Fault Analysis(고장 분석), Vehicle Safety(차량 안전), VIMS(자동차검사관리시스템), E-mobility(이모빌리티)

ABSTRACT

With the recent growth of the sharing economy in transportation, along with efforts to reduce greenhouse gases and fine dust, various types of new transportation are emerging. Among them, micro-electric vehicles with flexible mobility and economic feasibility of electric vehicles are steadily being distributed to the market due to their relatively advantageous range of use such as logistics, delivery, and near distance movement. In Korea, micro-electric vehicles were incorporated into the national automobile classification system through the revision of the Enforcement Rules of the Motor Vehicle Management Act in 2018, and were recognized as part of the automobile and applied to performance safety standards. However, as concerns about safety accidents of micro-electric vehicles at the operating stage have been continuously raised, an objective analysis of the driving safety of micro-electric vehicles is needed. Therefore, this research analyzed the fault types of micro-electric vehicles and general electric vehicles recorded in the Vehicle Inspection Management System(VIMS) to derive a plan to improve the vehicle safety of micro electric vehicles.

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폐배터리 운송 중 상태 정보 모니터링 시스템 개발

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Development of an In-Transport Monitoring System for Waste Battery Status Information

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Key Words : Lithium Secondary Battery(리튬이차전지), Waste Battery(폐배터리), Monitoring System(모니터링 시스템), Safety(안전)

ABSTRACT

Currently, as the demand for electric vehicles and hybrid vehicles equipped with lithium secondary batteries increases, the number of waste batteries generated during the disposal process is increasing rapidly. Lithium secondary batteries have high energy density, but their risks are accompanied by them, which requires safety management.

In Korea, a platform with a virtuous cycle system is being established for waste batteries that are generated after being scrapped, and transportation by a mobile system is essential for the circulation of waste batteries. Therefore, this paper presents the development of a state information monitoring system during transportation of waste batteries to prevent risk factors during transportation in terms of safety management.

The battery pack separated from the vehicle is mounted in a dedicated storage box installed in a transportation vehicle, and the driver can check the battery in real time after mounting it in the dedicated storage box. Battery state information uses a dedicated cable to transmit the battery state through CAN communication when connecting the battery pack.

Data transmitted in real time is stored in a cloud environment, and when an abnormality in a specific signal monitored is detected, the driver can recognize it through an alarm. In addition, in the event of a fire due to battery thermal runaway, the fire extinguishing function of the dedicated storage box operates through a specific signal during real-time data transmission.

Therefore, it aims to secure driver safety as much as possible from sudden battery fire accidents through prior warning.

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경유버스 데이터를 통한 DPF 관리 방안 마련 연구

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A Study on the DPF Management Through Diesel Bus Data Analysis

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Key Words : DPF(배기가스 후처리장치), SCR(배기가스 저감장치), Diesel BUS(경유버스), Sensor data(센서 데이터),
Data logger(데이터 로거)

ABSTRACT

The need for bus safety management with high relative risk of accidents has increased due to the enforcement of the Serious Disaster Punishment Act, and it is necessary to improve bus safety and reduce fine dust generation by establishing an integrated data-based vehicle operation control system. In order to prevent bus safety accidents and restore reliability in public transportation, a data analysis-based scientific vehicle safety monitoring system was established, and real-time sensor data of the bus was secured. Among them, environmental policies are currently implemented worldwide, and data analysis of DPF (Exhaust Gas Post-treatment Unit) and SCR (Exhaust Gas Reduction Device) can be used to derive fine dust generation reduction and low pollution policies.

This study analyzes the DPF sensor and SCR sensor data through the technology to collect ECU data in cars, analyzes the DPF cleaning cycle of buses, low-speed and high-speed buses, and suggests DPF management measures according to their characteristics.

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개조 전기자동차 고장안전대책(Fail-Safe) 시험·평가 방안 연구

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A Study on the Fail-Safe Test and Evaluation of a Tuned Electric Vehicle

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Key Words : Tuned electric-vehicles(개조 전기차), Self-diagnosis method(자기진단), Tuning(구조변경), Inspection items(검사항목)

ABSTRACT

Recently, based on the eco-friendly vehicle dissemination policy, the spread of electric vehicles is being made at a rapid pace, and the technology to convert from engine vehicles to electric vehicles is also emerging. However, when an engine vehicle is converted into an electric vehicle, there are no inspection items and methods for the safety of drivers and pedestrians. Therefore, in this paper, we analyze the self-diagnosis method of electric vehicle's core parts manufactured by automakers, and propose inspection items and methods for modified electric vehicles

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